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Decision 24-03-007 March 7, 2024

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking on the
Commission's Own Motion to
consider renewal of the Electric
Program Investment Charge Program.

Rulemaking 19-10-005

**DECISION ADOPTING STRATEGIC GOALS
FOR THE ELECTRIC PROGRAM INVESTMENT CHARGE PROGRAM**

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Appendix A - Adopted EPIC Strategic Goals

DECISION ADOPTING STRATEGIC GOALS FOR THE ELECTRIC PROGRAM INVESTMENT CHARGE PROGRAM

Summary

Consistent with the finding in Decision (D.) 18-10-052 that the Electric Program Investment Charge (EPIC) Program needed clearer direction on priorities that would generate an optimal mix of research projects that maximize ratepayer benefits, lead to energy innovation, and support California's key policy goals, and building on the mission statement and guiding principle adopted in D.21-11-028, this decision adopts five Strategic Goals for the EPIC Program.

The five goals, developed as part of a public workshop process authorized in D.23-04-042, are:

- Transportation Electrification;
- Distributed Energy Resource Integration;
- Building Decarbonization;
- Achieving 100 Percent Net-Zero Carbon Emissions and the Coordinated Role of Gas; and
- Climate Adaptation.

The next steps authorized by D.23-04-042 are several workshops to develop Strategic Objectives.

This proceeding remains open.

1. Background

On October 10, 2019, the California Public Utilities Commission (Commission), on its own motion, opened Rulemaking (R.) 19-10-005 to consider the renewal of the Electric Program Investment Charge (EPIC) Program.¹ The

¹ The EPIC Program is an energy innovation funding program established in 2011 under the authority of the Commission. It is organized around three program areas: Applied Research and Development, Technology Demonstration and Deployment, and Market Facilitation.

EPIC Program is funded by California utility customers under the auspices of the Commission.

The purpose of this proceeding is to review the EPIC Program, consider whether and how to continue funding the program, and to consider appropriate administrative and programmatic improvements. This decision focuses on the consideration of Strategic Goals for the EPIC Program.

On March 6, 2020, the assigned Commissioner issued a Scoping Memo and Ruling outlining the scope and schedule for this proceeding.

Decision (D.) 20-08-042, issued on September 2, 2020, addressed the question of continuing program funding by renewing EPIC for ten years, through December 31, 2030, and authorized two five-year Investment Plan Cycles (referred to, respectively, as EPIC 4 and EPIC 5). That decision authorized the California Energy Commission (CEC) to continue in its current role as an Administrator, with an annual budget of \$147.26 million for the EPIC 4 Investment Plan Cycle (2021-2025). The decision did not authorize the investor-owned utilities (IOUs) to continue in their current role as EPIC Administrators, citing concerns with their performance, and deferred a determination on this topic to Phase 2 of this proceeding. Otherwise, D.20-08-042 concluded Phase 1 of this proceeding.

On May 10, 2021, the Assigned Commissioner issued a First Amended Scoping Memo and Ruling (Amended Scoping Memo). The Amended Scoping Memo divided Phase 2 of this proceeding into three parts – Phase 2-A, Phase 2-B, and Phase 2-C – and ordered a supplemental round of comments on a proposal, as well as on questions related to Commission guidance on EPIC guiding principles and policy priorities.

On July 15, 2021, the Commission adopted D.21-07-006, which approved the CEC's EPIC 4 Interim Investment Plan (Phase 2-A).

On October 13, 2021, the assigned Commissioner issued a Second Amended Scoping Memo and Ruling, adding a new issue to the scope of this proceeding and modifying the schedule.

On November 18, 2021, the Commission adopted D.21-11-028, resolving most of the issues in Phase 2-B of this proceeding, including authorizing the IOUs to file their EPIC 4 Investment Plans, with additional administrative requirements. D.21-11-028 also adopted EPIC Program's mission statement and guiding principles.

On March 15, 2022, this proceeding was reassigned from Commissioner Martha Guzman Aceves to Commissioner Genevieve Shiroma.

On June 28, 2022, the assigned Commissioner issued a Third Amended Scoping Memo and Ruling, amending the scope of Phase 2-C.

On April 27, 2023, the Commission adopted D.23-04-042, approving a number of administrative improvements for the EPIC Program to increase transparency and focus on specific Strategic Goals. D.23-04-042 authorized a public planning and coordination process to develop Strategic Goals and Strategic Objectives. In August and September 2023, Energy Division Staff (Staff) led a series of five public workshops involving EPIC Administrators and experts in the energy research and development (R&D) field to develop Strategic Goals for future EPIC Investment Plans. The discussion at the workshops led to a Staff Proposal.

On November 20, 2023, the assigned Administrative Law Judge (ALJ) issued a ruling requesting comments on the summary reports of each of the five

workshops hosted by Staff in August and September 2023, as well as the Strategic Goals contained in the Staff Proposal.

On December 8, 2023, the following parties filed comments:

- Pacific Gas and Electric Company (PG&E);
- San Diego Gas & Electric Company (SDG&E);
- Southern California Edison Company (SCE);
- The CEC;
- California Energy Storage Alliance (CESA); and
- EV.ENERGY CORP (EV CORP).

On December 15, 2023, the following parties filed reply comments:

- PG&E;
- SDG&E;
- SCE;
- The CEC; and
- Weave Grid, Inc. (WeaveGrid).

1.1. Submission Date

This matter was submitted on December 15, 2023, upon the filing of reply comments.

2. Jurisdiction

The Commission's authority to initiate this rulemaking is pursuant to Public Utilities (Pub. Util.) Code Section 399.8, which reads in pertinent part as follows:

- (a) In order to ensure that the citizens of this state continue to receive safe, reliable, affordable, and environmentally sustainable electric service, it is the policy of this state and the intent of the Legislature that prudent investments in energy efficiency, renewable energy, and research, development, and demonstration shall continue to be made.

- (b) (1) Every customer of an electrical corporation shall pay a nonbypassable system benefits charge authorized pursuant to this article. The system benefits charge shall fund energy efficiency, renewable energy, and research, development, and demonstration.
- (2) Local publicly owned electric utilities shall continue to collect and administer system benefits charges pursuant to Section 385.
- (c) (1) The commission shall require each electrical corporation to identify a separate rate component to collect revenues to fund energy efficiency, renewable energy, and research, development, and demonstration programs authorized pursuant to this section.

Pub. Util. Code Section 740.1 provides additional guidance, stating that:

The Commission shall consider the following guidelines in evaluating the research, development, and demonstration programs proposed by electrical and gas corporations:

- (a) Projects should offer a reasonable probability of providing benefits to ratepayers.
- (b) Expenditures on projects which have a low probability for success should be minimized.
- (c) Projects should be consistent with the corporation's resource plan.
- (d) Projects should not unnecessarily duplicate research currently, previously, or imminently undertaken by other electrical or gas corporations or research organizations.
- (e) Each project should also support one or more of the following objectives:
 - (1) Environmental improvement.
 - (2) Public and employee safety.
 - (3) Conservation by efficient resource use or by reducing or shifting system load.

- (4) Development of new resources and processes, particularly renewable resources and processes which further supply technologies.
- (5) Improve operating efficiency and reliability or otherwise reduce operating costs.

3. Issues Before the Commission

This decision resolves the issues outlined below.

1. Should the Commission establish measurable Strategic Goals for the program? Should the Commission provide direction for topic areas and/or strategies that the Commission establishes to ensure EPIC investments are prioritized to achieve the state's goals and benefit ratepayers, within the context of the mandatory guiding principles and other program rules? What should be the process/cadence for revisiting these EPIC Strategic Goals and investment priorities?²
2. How should the Commission address recommendations from the Evergreen Evaluation that have not already been fully addressed?³

4. Development of Staff Proposal on Electric Program Investment Charge Program Strategic Goals

In D.18-10-052, the Commission agreed with the findings of the Evergreen Evaluation of the EPIC Program,⁴ that clearer direction on priorities would help generate an optimal mix of projects that would maximize ratepayer benefits, lead to energy innovation, and support the California's key policy goals.⁵

² See Third Amended Scoping Memo, issued on June 28, 2022, Issue 1(a).

³ See Third Amended Scoping Memo, issued on June 28, 2022, Issue 2.

⁴ Electric Program Investment Charge Evaluation Final Report, Evergreen Economics, September 8, 2017.

⁵ D.18-10-052, Appendix B provides summary of Commission determinations regarding recommendations in Evergreen EPIC evaluation final report.

In adopting D.21-11-028, the Commission approved a mission statement for EPIC and the Program's Guiding Principle.

EPIC's mission statement is "EPIC invests in innovation to ensure equitable access to safe, affordable, reliable, and environmentally sustainable energy for electricity ratepayers."⁶

EPIC's mandatory guiding principle is to provide ratepayer benefits. Ratepayer benefits are defined as:

- Improving safety;⁷
- Increasing reliability;⁸
- Increasing affordability;⁹
- Improving environmental sustainability;¹⁰ and
- Improving equity,¹¹ all as related to California's electric system.¹²

⁶ D.21-11-028 at Appendix A, A1.

⁷ EPIC innovations should improve the safety of operation of California's electric system in the face of climate change, wildfire, and emerging challenges.

⁸ EPIC innovations should increase the reliability of California's electric system while continuing to decarbonize California's electric power supply.

⁹ EPIC innovations should fund electric sector technologies and approaches that lower California electric rates and ratepayer costs and help enable the equitable adoption of clean energy technologies.

¹⁰ EPIC innovations should continue to reduce greenhouse house gas emissions, criteria pollutant emissions, and the overall environmental impacts of California's electric system, including land and water use.

¹¹ EPIC innovations should increasingly support, benefit, and engage disadvantaged vulnerable California communities (DVC). (D.20-08-046, Ordering Paragraph 1.) DVCs consist of communities in the 25 percent highest scoring census tracts according to the most recent version of the California Communities Environmental Health Screening Tool (CalEnviroScreen), as well as all California tribal lands, census tracts with median household incomes less than 60 percent of state median income, and census tracts that score in the highest 5 percent of Pollution Burden within CalEnviroScreen, but do not receive an overall CalEnviroScreen score due to unreliable public health and socioeconomic data.

¹² D.21-11-028 at Appendix A, A1-A2.

Building on the mission statement and guiding principle adopted in D.21-11-028, D.23-04-042 authorized a public engagement process to develop program-wide goals in order to evaluate the progress of EPIC investments and the extent to which EPIC Investment Plan portfolios maximize ratepayer benefits and impacts in achieving California's clean energy and climate goals.¹³

The five EPIC workshops took place over six days in August and September 2023, and involved 88 panelists and over 700 participants. The proposed Strategic Goals will inform the next stakeholder process to establish more detailed and nearer-term Strategic Objectives for the EPIC 5 Investment Plan Cycle (2026-2030), which will account for nearly \$1 billion in ratepayer investment.

The Staff Proposal outlines four EPIC Strategic Goals to guide the development of EPIC Administrator Investment Plans and asserts that, when executed, they will produce outcomes materially advancing achievement towards California's 2045 climate, clean energy, and equity goals.

5. Electric Program Investment Charge Program Policy Goals

Staff proposes goals for each of the following topics:

- Transportation Electrification;
- Distributed Energy Resource (DER) Integration;
- Building Decarbonization; and
- Achieving 100 Percent Net-Zero Carbon and the Coordinated Role of Gas.

Parties were asked to comment on both the workshop summaries and the Staff Proposal, and to explain their positions on the following questions:

¹³ D.23-04-042, Findings of Fact (FOF) 9 and FOF 13 and Conclusion of Law 3.

1. Should the Commission adopt the goals contained in the Staff Proposal?
2. Do parties propose the Commission adopt different goals? What are those goals?
3. Should the Commission adopt the proposed principles for equity and other crosscutting strategies contained in the Staff Proposal?
4. Do parties propose the Commission adopt different principles for equity and other crosscutting strategies? What are those principles?

5.1. Transportation Electrification

The Staff Proposal recommends that beginning with the EPIC 5 Investment Plan Cycle, one of the four Strategic Goals for EPIC Programs should be to invest in research, development, and demonstration (RD&D) that supports the planning, integration, scaling, and commercialization of technology that promotes California's climate goals to: (1) transition all medium- and heavy-duty vehicles in the state to zero-emission vehicles (ZEV) by 2045; (2) realize 100 percent ZEV in-state new car sales by 2035; and (3) significantly reduce pollution from the transportation sector in DVCs,¹⁴ and Environmental

¹⁴ The Staff Proposal uses the term DVC consistent with the EPIC proceeding's definition established in D.21-11-028 at Appendix A and 43, which references the definition given in D.20-08-046, Ordering Paragraph 1 as follows:

Disadvantaged Vulnerable Communities consist of communities in the 25% highest scoring census tracts according to the most recent version of the California Communities Environmental Health Screening Tool (CalEnviroScreen), as well as all California tribal lands, census tracts with median household incomes less than 60% of state median income, and census tracts that score in the highest 5% of Pollution Burden within CalEnviroScreen, but do not receive an overall CalEnviroScreen score due to unreliable public health and socioeconomic data.

Protection Agency non-attainment air districts as soon as possible.¹⁵ Workshop participants viewed this goal as one that could address the following gaps:

- High costs related to charger interconnection and grid upgrades for areas with high concentrations of electric vehicle (EV) charging infrastructure;
- High costs of EV charging infrastructure for light, medium, and heavy-duty EVs;
- Lack of availability of affordable public charging infrastructure;
- Misalignment between EV loads and intermittent renewable energy production;
- Incomplete understanding of consumer decision-making behavior related to challenges of EV adoption;
- Lack of opportunities for DVCs to directly benefit from EV adoption;
- High costs of infrastructure for electrifying public transit to benefit DVC and non-attainment communities by mitigating pollution;
- Additional innovations needed to ensure resilience during natural disasters and widespread power outages; and
- Lack of robust and uniform data sharing and cybersecurity protocols for transportation electrification.¹⁶

5.1.1. Positions of Parties

PG&E generally supports the Transportation Electrification goal, noting that the associated description of gaps identified at the workshops and in the

¹⁵ Consistent with Executive Order N-79-20 (September 23, 2020) available at: <https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf>.

¹⁶ Staff Proposal at 6.

Staff Proposal overlap extensively with the 10-year R&D priorities expressed in PG&E's own R&D Strategy Report.¹⁷

EV CORP agrees with this goal and the key gaps identified, asserting that proper integration and management of EV charging onto the grid can help provide the necessary flexibility to support increasing EV adoption within California and help utilities realize grid and societal benefits by incentivizing off-peak charging, aligning charging with low-cost and low-carbon generation, placing downward pressure on electricity rates, and allowing for local management to avoid costly distribution upgrades, among other benefits. EV CORP notes that while many Community Choice Aggregators in California offer managed charging programs, these offerings have largely been absent from the IOUs.¹⁸

WeaveGrid also supports this goal and agrees with the importance of highlighting the identified gaps. In particular, WeaveGrid asserts that one of the most impactful considerations for investment in the transportation electrification sector is around the issue of distribution grid impacts of EV charging.¹⁹

The CEC supports adoption of this Strategic Goal,²⁰ though it asks that the Commission clarify that the identified gaps for each proposed goal are intended to be illustrative examples and not an exhaustive list of the types of funding and

¹⁷ PG&E Opening Comments at 1.

¹⁸ EV CORP Opening Comments at 3-4.

¹⁹ WeaveGrid Reply Comments at 3.

²⁰ CEC Opening Comments at 5.

topics that the EPIC Administrators may pursue in their EPIC 5 Investment Plans.²¹ SDG&E, SCE, and PG&E agree with the CEC.²²

SDG&E in general supports the four goals contained in the Staff Proposal, but asks the Commission to clarify the goals to distinguish the roles between the CEC and IOU EPIC Administrators, since the IOUs are only permitted to conduct technology demonstration and deployment projects and not permitted to undertake applied R&D and market facilitation projects, while the CEC may carry out projects in all three activities.²³ SDG&E requests clarifying the Transportation Electrification goal to include language on how the transportation sector should integrate research technologies to advance operation of the electric grid.²⁴

SCE endorses the four goals identified in the Staff Proposal,²⁵ but also recommends the Commission adopt three additional goals that are discussed below, in Section 6.

5.1.2. Discussion

The Commission adopts this Strategic Goal and clarifies that the identified gaps are not the only gaps that proposed projects may address. Additional gaps may be added to the record through the next round of workshops meant to develop Strategic Objectives. We encourage all parties to actively participate in these workshops.

²¹ *Id.* at 3-4.

²² SDG&E Opening Comments at 4; SCE Reply Comments at 2; PG&E Reply Comments at 1-2.

²³ SDG&E Opening Comments at 4.

²⁴ *Id.*

²⁵ SCE Opening Comments at 2.

We decline to provide further clarifications that would distinguish or differentiate the roles of each EPIC Administrator. The proposed gaps do not specify which Administrator should address what gaps. Further, D.12-05-037 defines the roles of the EPIC Administrators.

5.2. Distributed Energy Resource Integration

The Staff Proposal recommends that beginning with the EPIC 5 Investment Plan Cycle, one of the four Strategic Goals for EPIC Programs should be to invest in RD&D that supports the cost-effective integration of high penetrations of DERs to support the state's goal to achieve a renewable and zero-carbon power sector by 2045. This would be done in part by building on California's goal to deploy 7,000 megawatts of flexible load by 2030, and by addressing the following gaps:

- Insufficient valuation, incomplete businesses models, and lack of appropriate market mechanisms for transmission and distribution grid services provided by flexible resources;
- Lack of uniform standards and protocols for interconnection, system design, and communication among grid-connected devices, including smart meters, smart inverters, and internet-of-things technology;
- Complex and demanding interconnection processes that increase the costs and slow timelines for DER deployment;
- Need for better understanding of the ability of aggregated DER and Virtual Power Plant deployment to reduce or forestall the cost associated with grid upgrades, and to support grid reliability;
- Lack of opportunities for DVCs to engage early on and directly benefit from deployment of flexible resources;
- An outsized burden that long-duration outages have on DVCs;

- Need for better understanding of consumer adoption behavior regarding flexible DERs;
- Lack of comprehensive weather operational data to predict system conditions;
- Need for reliable and resilient power for communities and critical facilities during periods of power outages due to wildfire, extreme weather, and other emergency situations; and
- Lack of robust and uniform data sharing and cybersecurity protocols for DERs.²⁶

5.2.1. Positions of Parties

PG&E generally supports the DER goal and recommends adding two other goals, discussed in more detail in Section 6.²⁷

The CEC supports adoption of this Strategic Goal, though it suggests that several gaps identified under the Building Decarbonization goal are better suited for the DER Integration goal, including the “lack of flexible load capacity from building electric use” and “need for advanced modeling and forecasting to better account for demand flexibility potential” gaps, which the CEC suggests are more aligned with the DER Integration goal as they speak more to grid interactivity and less to building sector decarbonization.²⁸

SCE endorses the four goals identified in the Staff Proposal,²⁹ but also recommends that the Commission adopt three additional goals that are discussed in Section 6.

²⁶ Staff Proposal at 8.

²⁷ PG&E Opening Comments at 1.

²⁸ CEC Opening Comments at 6.

²⁹ SCE Opening Comments at 2.

SDG&E specifically notes the following language in the Staff Proposal: “Participants also observed that EPIC should endeavor to develop solutions that also provide non-energy benefits related to health, habitability, and thermal comfort;” and responds that, “SDG&E’s business is to provide reliable, resilient, and safe electric service. The goals of health, habitability, and thermal comfort are potentially by-products, but not something an IOU can directly influence in EPIC. As such, this portion of the goal can only be tangentially related and should not be a mandate within EPIC 5.”³⁰

5.2.2. Discussion

The Commission adopts this Strategic Goal and clarifies that the identified gaps are not the only gaps that proposed projects may address. Additional gaps may be added to the record through the next round of workshops meant to develop strategic objectives. We encourage all parties to actively participate in these workshops.

In response to the CEC’s comment that some gaps may be more appropriate under another Strategic Goal, we note that the gaps listed are associated according to the workshop they were identified in. This does not limit identified gaps from being relevant to other Strategic Goals.

5.3. Building Decarbonization

The Staff Proposal recommends that beginning with the EPIC 5 Investment Plan Cycle, one of the four Strategic Goals for EPIC Programs should be to invest in RD&D that supports the rapid acceleration of comprehensive, cost-effective, and equitable building decarbonization strategies to support the achievement of the state’s targets to be carbon neutral by 2045 economy-wide, including

³⁰ SDG&E Opening Comments at 4.

achieving and sustaining a three percent annual building electrification retrofit rate (3.6 percent for affordable housing) by and beyond 2030. This goal would address the following gaps, among others:

- High upfront costs of electrification retrofits;
- Long lead and installation times for electrification retrofits, in comparison to emergency equipment replacement timeline needs;
- High costs of grid upgrades associated with new, unmanaged electric load;
- Lack of flexible load capacity from building electric use;
- Need for advanced modeling and forecasting to better account for demand flexibility potential;
- Lack of standardization in currently complex and demanding building codes, permitting, and interconnection processes;
- High energy burden levels for low-income customers as compared to national and state averages, and increasing electric rates;
- Lack of energy burden, air quality, and safety metrics for building decarbonization efforts;
- Lack of whole home retrofit approaches for low-income retrofits;
- Inability of renters to make large-scale, permanent upgrades in tenant-occupied buildings, and risks of increased rent burdens and loss of affordable housing;
- Increasing share of gas infrastructure costs accruing to those not able to afford electric retrofits;
- Inability to easily share data across systems needed to plan for, develop, interconnect; and optimize building retrofits;
- Lack of understanding of customer behavior in technology adoption and demand flexibility;

- Lack of standardized retrofit packages and difficulty for consumers in coordinating among different decarbonization incentives and financing opportunities to understand how to fit them together to complement each other to reduce decarbonization costs;
- Lack of advanced planning, including city planning, for grid needs; and
- Lack of low-cost automation and sensing solutions for commercial buildings.³¹

5.3.1. Positions of Parties

The CEC supports adoption of this Strategic Goal, though it notes that many of the gaps identified under this goal are focused on the residential sector and that attention must also be paid to commercial and industrial buildings that often have higher energy demand and unique end-uses that make electrification and decarbonization more difficult than in the residential sector. Moreover, the CEC believes that EPIC is likely best positioned to help address the high energy burdens faced by low-income customers due to increasing electric rates through the advancement of technologies that can maximize energy efficiency and reduce cost of implementation. However, because new technologies may initially cost more than standard code-compliant ones, other market interventions, such as utility rebates, inclusion in low-income weatherization programs, and/or zero-interest loans for multifamily building owners will be important.³²

PG&E generally supports the Strategic Goals outlined in the Staff Proposal and recommends adding two other goals, discussed in more detail in Section 6.³³

³¹ Staff Proposal at 10-11.

³² CEC Opening Comments at 6-7.

³³ PG&E Opening Comments at 1.

SCE endorses the four goals identified in the Staff Proposal,³⁴ but also recommends that the Commission adopt three additional goals that are discussed in Section 6.

5.3.2. Discussion

The Commission adopts this Strategic Goal and clarifies that the identified gaps are not the only gaps that proposed projects may address. Additional gaps may be added to the record through the next round of workshops meant to develop strategic objectives. We encourage all parties to participate actively in these workshops.

We disagree with the CEC's assessment that the inclusion of a target for residential building retrofits limits an Administrator's ability to propose more detailed Strategic Objectives for other building sectors. For clarification, it does not.

5.4. Achieving 100 Percent Net-Zero Carbon and the Coordinated Role of Gas

The Staff Proposal recommends that beginning with the EPIC 5 Investment Plan Cycle, one of the four Strategic Goals for EPIC Programs should be to invest in RD&D that seeks to identify cost-effective opportunities for achieving the "last 10 percent" of reaching the state's goal to be carbon neutral by 2045 economy-wide. Investments will help scale up and commercialize California-specific decarbonization strategies that provide ratepayer benefit and coordinate with other California RD&D programs, by addressing the following gaps:

- Lack of clear pathways to economically decarbonize 100 percent of hard-to-decarbonize activities through

³⁴ SCE Opening Comments at 2.

electrification with no increase in air, water, and land pollutants by 2045;

- Lack of coordination between grid operators in the western region to integrate new large- scale renewable resources, including offshore wind (OSW);
- Lack of independent studies on the appropriate, cost-effective roles and lifecycle costs and impacts of emerging technologies, including floating OSW, enhanced geothermal, biomass conversion, and clean renewable hydrogen in achieving carbon neutrality;
- Lack of information on high production and life-cycle costs of “green” electrolytic hydrogen;
- Lack of opportunities for DVCs to be readily included in the discussions and decision-making process on emerging generation and storage technology adoption, including discussion of potential impacts on public health;
- Lack of coordination and collaboration among EPIC and other gas and electric RD&D program investments on the common goal of decarbonization and right-sizing energy infrastructure and ratepayer affordability;
- Lack of understanding on the potential to transition entire neighborhoods from gas to geothermal heating and cooling, particularly in warm climates; and
- Lack of a coordinated, statewide program to substitute non-pipeline alternatives for gas system repair and replacement projects where technically feasible.³⁵

5.4.1. Positions of Parties

The CEC supports the intent of this Strategic Goal; however, the CEC recommends removing reference to the use of the “last 10 percent” and removing the reference to electrification.³⁶ The National Renewable Energy Laboratory

³⁵ Staff Proposal at 12.

³⁶ CEC Opening Comments at 7.

report cited in the EPIC Strategic Goals Workshop Process Reports provides the “last 10 percent” framework as a set of recommendations on achieving a 100 percent carbon-free electricity grid. However, the CEC asserts that achieving the broader goal of carbon neutrality by 2045 economy-wide will require more than decarbonization of the electricity grid, and that even with a 100 percent clean grid, California would still need to address emissions from the transportation, industrial, and other sectors. Similarly, the CEC recommends removing the reference to electrification, as it is not the only strategy to achieving carbon neutrality.³⁷

SCE endorses the four goals identified in the Staff Proposal,³⁸ but also recommends that the Commission adopt three additional goals that are discussed in Section 6.

PG&E generally supports the Strategic Goals outlined in the Staff Proposal and recommends adding two other goals, discussed in more detail in Section 6.³⁹

SDG&E understands the need for electric and natural gas collaboration to meet California’s net zero targeted goals. However, as SDG&E has previously stated, EPIC is an electric ratepayer funded program. In D.23-04-042, the Commission agreed there could be a potential subsidy for either electric and natural gas ratepayers for a combined R&D database and denied the R&D electric and natural gas database. SDG&E expresses concern that this Strategic Goal is a potential subsidy and should not be considered in this EPIC proceeding. SDG&E recommends that this goal instead should be something the

³⁷ *Id.*

³⁸ SCE Opening Comments at 2.

³⁹ PG&E Opening Comments at 1.

Commission takes up in a separate proceeding that is funded by both electric and gas ratepayers, since EPIC funds currently cannot support gas projects.⁴⁰

The CEC does not agree with SDG&E's assessment that this goal represents a potential subsidy. The CEC opines that this goal "provides EPIC the critical ability to support advancements in hard-to-decarbonize sectors in support of California's carbon neutrality goals, including supporting energy-related environmental and climate research, decarbonizing the industrial, agricultural, and water sectors, and advancing new opportunities for renewable generation."⁴¹ Further, the CEC contends it is possible for EPIC research to inform the future role of gas (fossil or zero-emission) in California's energy future, while also benefitting electric ratepayers. For example, research into reducing the cost of green-hydrogen benefits ratepayers may inform opportunities to decarbonize the industrial sector or inform the potential decommissioning of the fossil-gas infrastructure.⁴²

CESA supports the effort to develop goals for EPIC and recommends consideration of long-term market planning as it relates to valuing the wide variety of energy storage technologies that are both commercially available and emerging as viable alternatives, such as Long Duration Energy Storage (LDES). CESA supports further LDES opportunity development in the EPIC 5 Investment Plan Cycle's next steps in order to explore some specific issues highlighted in the Staff Proposal.⁴³

⁴⁰ SDG&E Opening Comments at 4-5.

⁴¹ CEC Reply Comments at 2-3.

⁴² *Id.* at 2.

⁴³ CESA Opening Comments at 2-3.

5.4.2. Discussion

The Commission adopts this Strategic Goal and clarifies that the identified gaps are not the only gaps that proposed projects may address. Additional gaps may be added to the record through the next round of workshops meant to develop strategic objectives. We encourage all parties to participate actively in these workshops.

We decline to revise this goal by removing the “last 10 percent” or “electrification” verbiage from the stated goal. Achieving decarbonization by innovative electrification of the last 10 percent of hard to electrify sectors is within the scope of EPIC’s regulatory mandate to remove barriers to achieving California’s climate goals and EPIC’s purpose is to focus on the electricity sector.

SDG&E correctly points out that EPIC funds currently cannot be used to invest in gas projects and that electricity ratepayer funds must be tracked separately for accounting purposes from funds meant for other utilities. In adopting this goal, the Commission does not intend to invest in gas projects or in other industries for which EPIC funds may not be used.

6. Additional Goals Proposed by Parties

Several parties propose that the Commission adopt additional goals.

PG&E recommends two additional goals: grid resiliency and customer affordability.

Regarding grid resiliency, PG&E notes that its EPIC 4 Investment Plan will focus heavily on wildfire mitigation and that significant additional work in this area will need to continue through the EPIC 5 Investment Plan Cycle. While Staff proposes crosscutting principles related to safety, and a few of the Strategic Goals narrowly address elements of grid resiliency, such as customer backup power during grid outages, PG&E contends that the broad issue of preventing

and mitigating the effects of wildfires and other climate-driven events is not addressed in the existing set of Strategic Goals. As such, PG&E argues it is appropriate to adopt a distinct Strategic Goal for grid resiliency.⁴⁴

Regarding its proposal to include a Strategic Goal of customer affordability, PG&E notes that Staff proposes cost as a crosscutting principle for emerging strategies, and specific aspects of customer affordability are also addressed across the Strategic Goals. For example, the Transportation Electrification and DER Integration Strategic Goals will address the high costs of interconnecting EVs and other DERs, and Building Decarbonization will address the high costs of electrification retrofits. However, outside of a few specific areas, the Strategic Goals do not broadly address the issue of overall utility cost effectiveness, where a range of innovative technologies could be applied to reduce IOU expenses and customer bills.⁴⁵

SCE supports adding affordability as a Strategic Goal, asserting that there are ample opportunities for utility operational efficiencies not covered in the Staff Proposal's four goals, and emerging technologies could be applied to reduce utility costs and subsequently customer bills. SCE also notes that during the EPIC 1-3 Investment Plan Cycles, the IOU Investment Plans included an area of investment called grid modernization, and in its EPIC 4 Investment Plan, SCE discusses advancements to its operational processes in its research topics.⁴⁶

SCE supports the addition of two more goals: climate adaptation (with a focus on wildfire mitigation) and cybersecurity. SCE opines that with the addition of these goals, EPIC appropriately and holistically covers all

⁴⁴ PG&E Opening Comments at 2.

⁴⁵ *Id.* at 2-3.

⁴⁶ SCE Opening Comments at 3.

Administrator's strengths and helps to ensure EPIC addresses all key policy areas of investment to help California achieve its energy and environmental policy goals and associated Commission proceedings.⁴⁷

Regarding climate adaptation, SCE notes that as our climate continues to change and more extreme weather events occur, the electric grid will need to increase flexibility and resiliency. SCE began working on demonstration projects with emerging technologies in response to climate adaptation during the EPIC 2 Investment Plan Cycle and continued that work during the EPIC 3 and EPIC 4 Cycles, including wildfire mitigation in its EPIC 4 Investment Plan. SCE recommends establishing a goal harmonizing the approaches of all the EPIC Administrators towards increased flexibility and resiliency of the grid.⁴⁸ PG&E concurs with SCE's recommendation.⁴⁹

Regarding cybersecurity, SCE writes that threats to the electric grid continue to evolve and increase. As the grid uses increased computer automation, SCE asserts that maintaining the grid's security from cyber threats is of critical importance. SCE notes cybersecurity projects in its EPIC 3 and EPIC 4 Investment Plans and opines that an established cybersecurity goal would help focus efforts from Administrators to continue making collective advances toward the security and resiliency of the grid.⁵⁰

The CEC concurs with PG&E and SCE that grid resiliency, affordability, climate adaptation, and cybersecurity are important topics to consider in the EPIC 5 Investment Plan Cycle, asserting that ensuring a resilient electric grid in

⁴⁷ *Id.* at 3.

⁴⁸ SCE Opening Comments at 2-3.

⁴⁹ PG&E Reply Comments at 2.

⁵⁰ SCE Opening Comments at 3.

the face of a changing climate, natural disasters, or human-made attacks, while maintaining customer affordability, is critical in transitioning California to a clean-energy economy.⁵¹

6.1. Discussion

The Commission adopts a fifth Strategic Goal for EPIC: Climate Adaptation. Several parties make a convincing argument that this is an appropriate fifth goal that is not addressed within the four proposed goals. Workshop participants also raised the need to respond to weather and climate variability as one of the major gaps that need further research, in particular research that is focused on protecting vulnerable populations, given that the impact of outages on Tribal and remote communities may be more profound, and cut off access to medical assistance, education, and even basic necessities. Parties did not provide specific quantifiable targets on climate adaptation, thus further refinement to quantify this Strategic Goal is necessary during the Strategic Objectives workshops that will be held after the adoption of this decision.

We decline to adopt the other proposed goals. Affordability is embedded throughout the EPIC Program as a fundamental definition of ratepayer benefit. Cybersecurity appears as a gap in several of the adopted Strategic Goals. Additionally, grid resiliency is part of the principles discussed in Section 7, below, that span multiple goals. It is possible that some of the goals parties propose may be appropriate in informing development of Strategic Objectives in the upcoming workshop process.

⁵¹ CEC Reply Comments at 4.

7. Principles for Equity and Other Crosscutting Strategies

During the workshops, participants frequently raised issues that span across several of the proposed Strategic Goals. Thus, Staff proposes principles for crosscutting strategies that can be applied to all of the Strategic Goals, including goals related to:

- Equity;
- Customer-focused solutions;
- Reliability;
- Resilience;
- Emerging strategies; and
- Safety (including cybersecurity).⁵²

7.1. Positions of Parties

The CEC supports the adoption of the principles for Equity and other Crosscutting Strategies, though the CEC recommends additional clarification on how these principles and strategies are intended to interact with the Strategic Goals and the potential for initiative development. The CEC also recommends that systemic interactions among Strategic Goal topics be prioritized, enabling interdisciplinary and/or multisector project concepts to fit within the Investment Plan structure. The CEC recommends adding a strategy on entrepreneurship to the proposed principles for Emerging Strategies.⁵³

SCE agrees with the proposed principles, though as noted in Section 6, SCE recommends that affordability be elevated from a principle to a Strategic Goal.⁵⁴

⁵² Staff Proposal at 13.

⁵³ CEC Opening Comments at 11.

⁵⁴ SCE Opening Comments at 4.

As noted in Section 6, PG&E recommends that the Commission adopt the proposed crosscutting principles related to safety, as well as the broader issues of preventing and mitigating the effects of wildfires and other climate-driven events as a distinct Strategic Goal.⁵⁵

SDG&E asserts that the proposed principles should be adopted with modifications to take into account the IOUs' limited scope in EPIC. While the CEC can invest in a proposal that addresses specific concerns raised by Environmental and Social Justice community representatives about the role of biomass, clean renewable hydrogen, combustion technologies, and the potential for unintended consequences such as increased emissions in vulnerable communities, SDG&E contends that the IOUs cannot use EPIC ratepayer funds for power generation and the IOUs are also not allowed to conduct applied research. Because of these restrictions, SDG&E recommends that the requirement describing principles for emerging strategies only mention the CEC, instead of the IOU EPIC Administrators.⁵⁶ SDG&E and PG&E ask that the Commission utilize the community engagement plan from R.18-04-019 to meet the objective of the Staff Proposal in this proceeding.⁵⁷

7.2. Discussion

The intent behind proposing these principles was to provide guidelines for assessing proposed Strategic Objectives for EPIC 5 to ensure important cross-cutting issues identified in the Strategic Goals workshops are considered

⁵⁵ PG&E Opening Comments at 2.

⁵⁶ SDG&E Opening Comments at 5-6.

⁵⁷ SDG&E asserts that the Commission has already required outreach to DVCs in R.18-04-019, *Order Instituting Rulemaking to Consider Strategies and Guidance for Climate Change Adaptation*. (SDG&E Opening Comments at 8; PG&E Reply Comments at 2.)

during the workshops that will focus on developing Strategic Objectives. The Commission endorses these principles.

8. Summary of Public Comment

Rule 1.18 of the Commission's Rules of Practice and Procedure allows any member of the public to submit written comment in any Commission proceeding using the "Public Comment" tab of the online Docket Card for that proceeding on the Commission's website. Rule 1.18(b) requires that relevant written comment submitted in a proceeding be summarized in the final decision issued in that proceeding.

No public comments were submitted to the Docket Card.

9. Procedural Matters

This decision affirms all rulings made by the assigned ALJ and assigned Commissioner in this proceeding. All motions not ruled on are deemed denied.

10. Comments on Proposed Decision

The proposed decision of ALJ Thomas J. Glegola in this matter was mailed to the parties in accordance with Pub. Util. Code Section 311 and comments were allowed under Rule 14.3.

On February 21, 2024, the following parties filed comments: the CEC, SCE, and PG&E. No parties filed reply comments.

No changes were made to the decision.

11. Assignment of Proceeding

Karen Douglas is the assigned Commissioner and Thomas J. Glegola is the assigned ALJ in this proceeding.

Findings of Fact

1. EPIC funds have financed promising projects that provide considerable energy savings and improve safety.

2. The Evergreen Evaluation identified recommendations to improve IOU administration of EPIC.

3. In D.18-10-052, this Commission agreed with the Evergreen Evaluation that clearer Commission direction on program priorities would help generate an optimal mix of projects to maximize ratepayer benefits, lead to energy innovation, and support the state's key policy goals. D.23-04-042 found a need to prioritize EPIC's many objectives.

4. D.23-04-042 concluded that a Strategic Goals and Strategic Objectives process improves upon the existing practice by using a public process to develop clear and measurable goals at the inception of EPIC Investment Plans, with the input of a broad range of external national experts.

5. In August and September 2023, Staff hosted five workshops involving 88 panelists and over 700 participants that contributed to the development of the EPIC Strategic Goals.

6. On November 20, 2023, the assigned ALJ issued a ruling requesting comment on the Staff Proposal for EPIC Strategic Goals.

7. The Staff proposed Transportation Electrification Strategic Goal supports the planning, integration, scaling, and commercialization of technology that promotes California's climate goals.

8. The Staff proposed DER Integration Strategic Goal supports the cost-effective integration of high penetrations of DERs and the state's goal to achieve a renewable and zero-carbon power sector by 2045.

9. The Staff proposed Building Decarbonization Strategic Goal supports the rapid acceleration of comprehensive, cost-effective, and equitable building decarbonization strategies and achievement of the state's targets to be carbon neutral by 2045 economy-wide.

10. The Staff proposed Strategic Goal of Achieving 100 Percent Net-Zero Carbon and the Coordinated Role of Gas helps identify cost-effective opportunities for achieving the “last 10 percent” of reaching the state’s goal to be carbon neutral by 2045 economy-wide.

11. The IOU proposed Climate Adaptation Strategic Goal has not been addressed by the other four proposed Strategic Goals.

12. All other proposed Strategic Goals are already embedded within the EPIC Program through one of the other Strategic Goals.

13. It may be possible for EPIC research to inform the future role of gas in a manner that complies with the mandate to track electricity ratepayers funds separately from funds meant for other utilities.

Conclusions of Law

1. The EPIC Strategic Goals represent a continuation and refinement of existing Commission policy, as articulated collectively in D.18-10-052, D.21-11-028, and D.23-04-042.

2. The Commission should adopt these five EPIC Strategic Goals for the EPIC Program: Transportation Electrification, Distributed Energy Resource Integration, Building Decarbonization, Achieving 100 Percent Net-Zero Carbon and the Coordinated Role of Gas, and Climate Adaptation.

3. To avoid a potential cross-subsidy, electricity ratepayer funds should be tracked separately for accounting purposes from funds meant for other utilities.

O R D E R

IT IS ORDERED that:

1. Five Strategic Goals for the Electric Program Investment Charge Program are adopted, as detailed in Appendix A: Transportation Electrification, Distributed Energy Resource Integration, Building Decarbonization, Achieving

100 percent Net-Zero Carbon and the Coordinated Role of Gas, and Climate Adaptation.

2. Rulemaking 19-10-005 remains open.

This order is effective today.

Dated March 7, 2024, at San Francisco, California.

ALICE REYNOLDS

President

DARCIE L. HOUCK

JOHN REYNOLDS

KAREN DOUGLAS

Commissioners

Commissioner Matthew Baker recused himself from this agenda item and was not part of the quorum in its consideration.

APPENDIX A

Appendix A

Adopted Electric Program Investment Charge Program Strategic Goals

Electric Program Investment Charge Program Strategic Goals		
Strategic Goal 1	Transportation Electrification	The Electric Program Investment Charge (EPIC) Program will invest in research, development, and demonstration (RD&D) that supports the planning, integration, scaling, and commercialization of innovation that promotes the state’s climate goals to: (1) transition all medium- and heavy-duty vehicles in the state to zero-emission vehicles (ZEV) by 2045; (2) realize 100 percent ZEV in-state new car sales by 2035; and (3) significantly reduce pollution from the transportation sector in disadvantaged, low-income, Environmental and Social Justice (ESJ), and tribal communities, and Environmental Protection Agency non-attainment air districts as soon as possible, by addressing identified gaps for this goal.
Strategic Goal 2	Distributed Energy Resource Integration	EPIC will invest in the cost-effective integration of high penetrations of distributed energy resources to support the state’s goal to achieve a renewable and zero-carbon power sector by 2045, in part by building on the state’s goal to deploy 7,000 megawatts of flexible load by 2030, by addressing identified gaps for this goal.
Strategic Goal 3	Building Decarbonization	EPIC will invest in the rapid acceleration of comprehensive, cost-effective, and equitable building decarbonization technologies and strategies to help achieve the state’s goal to be carbon neutral by 2045 economy-wide, including achieving and sustaining a three percent annual building electrification retrofit rate (3.6 percent for affordable housing) by and beyond 2030, by addressing identified gaps for this goal.
Strategic Goal 4	Achieving 100 Percent Net-Zero Carbon and the Coordinated	EPIC will seek to identify cost-effective opportunities for reaching the “last 10%” of the state’s goal to be carbon neutral by 2045 economy-wide, through investment in California-specific strategies for hard-to-decarbonize energy-consuming sectors that could be decarbonized

Electric Program Investment Charge Program Strategic Goals		
	Role of Gas	through electrification and coordination with other California RD&D programs to align investments and activities for emerging strategies, by addressing identified gaps for this goal.
Strategic Goal 5	Climate Adaptation	EPIC Plans will seek to identify cost-effective, targeted research opportunities for improving grid resiliency and stability, particularly for adaptability of and impacts on ESJ and tribal communities during severe weather events, including preventing and mitigating the effects of wildfires, floods, and other climate-driven events; hardening the grid and improving resiliency especially in the most remote grid edge locations; reducing the number of customers experiencing long-duration outages; and reducing the duration of these outages, ⁵⁸ by addressing identified gaps for this goal.

⁵⁸ Grid Mod at 20, 24, 26; Equity at 13, Kick-Off at 10, 11; Emerging at 30.